Efficacy of drug on urinary and genital tract infection

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Aim: The aim of this study was to demonstrate the efficacy of antibiotics on isolates from urinary and genital tracts during pregnancy in Jordan.

Methods: This study was conducted during summer 2016 where 129 midstream urine samples were collected in the laboratory while 71 high vaginal swabs (HVS) were referred. Urine samples were collected in wide capped sterile containers while HVS sent to the laboratories from maternity clinic within twenty minutes of collection. Microbiological studies proceeded as soon as samples reached laboratory. Delayed samples were rejected if they exceed recommended time. Collected urine specimens were cultured immediately using blood and MacConkey agar plates to determine the pattern of disease and causative organisms. Samples were inoculated in duplicate aseptically and incubated aerobically at 37°C. Colony forming units were counted 24 hours later, and count if ≥ 100,000/ml, antimicrobial sensitivity studies were then performed and read after a further 24 hours. Nutrient, blood, Chocolate and MacConkey agar media were used for HVS. Plates were inoculated in duplicate aseptically and were incubated under aerobic and anaerobic condition at 37°C for 24 hours. Microorganism identification and characterization using routine morphological and biochemical methods were applied. Mueller Hinton Agar (MHA) was the selected medium for sensitivity test. Commercial multidisc and single sensitivity discs were used for the susceptibility test. Antibiotics discs; amoxicillin (AMX) 25 μg, augmentin* (AUG) 30 μg, cefoxitin (FOX) 30 μg ceftriazone (CRO) 30 μg, cotrimoxazole (COT), ciprofloxacin (CPX) 10 μg, gentamycin (GEN) 10 μg, imipenim (IPM)10 μg, levofloxacin (LEV) 30 μg, nalidixic acid (NA 30 μg), nitrofurantoin (NIT) 20 μg, Norofloxacin (NOR) 30 μg, pefloxacin (PFL) 5 μg, tobramycin (TOB) 10 μg were used. Zone of inhibition measured to determine the level of susceptibility of isolates to the antibiotics. Data obtained in this study were analyzed using SPSS version16.0

Results: 101 (78.3%) and 31 (43.7%) revealed growth for urine and HVS respectively. The rate of urinary tract Infection (UTI) was significantly higher than genital tract infection (P < 0.05). Escherichia coli revealed the highest prevalence 38 (37.6%) in urinary tract, while Staphylococcus aureus was the highest isolates in genital tract 8 (25.8%). Staphylococcus aureus and coliforms showed the next highest rates 16(15.8%) and 15 (14.9%) respectively followed by Klebsiella pneumonia 14(13.9%) for urine samples. Other bacterial species include Staphylococcus epidermidis, Streptococcus feacialis, Proteus mirabilis and Bacteriodes were isolated with various prevalence rate. The prevalence of Candida albicans for HVS and urine was 10 (32.3%) and 6 (5.9%) respectively while Lactobacillus spp. was solely isolated from HVS. meropenem and norfloxacin showed 100.0% and 99.3% activity for urine and HVS isolates respectively, followed by Imipenem 100.0%, 97.4% and levofloxacin 98.9%, 99.3%. They were the most active antibiotics, followed by tobramycin (95.5%, 92.2%), cefoxitin (89.5%, 94.1%) and ciprofloxacin (89.5%, 86.2%). No statistical significant variation in drug susceptibility between isolate from urine and HVS. The percentage of multidrug resistance was 67.0% (61.1%) and 59.1% (57.1%) for urine and HVS isolates respectively. The rate of multidrug resistance was higher than 50.0% for both urine and HVS samples.

Conclusion: These results are worrisome and essential care should be taken in pregnancy unit and drug prescribing policy should be monitored and updated.

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